



MARSHALL STAR

Serving the Marshall Space Flight Center Community

May 4, 2006

NASA successfully completes solid rocket motor test April 28

By Sanda Martel

NASA's Space Shuttle Program successfully static fired a full-scale, full-duration reusable solid rocket motor Friday, April 28, at a Utah test facility. The two-minute test was performed by ATK Launch Systems, an Alliant Techsystems Inc. group, in Promontory.

The flight support motor, FSM-12, burned for approximately 123 seconds, the same amount of time each reusable solid rocket motor burns during an actual space shuttle launch. The test firing included 62 specific objectives and used 711 instrumentation channels to

See Test on page 2



A reusable solid rocket motor successfully fires during testing April 28 at a Utah test facility. The static-fire test was conducted by ATK Launch Systems in Promontory for NASA's Space Shuttle Program. See page 6 for an up-close photo of the test.

'Minor' meteor shower could light up the night May 5-6

By Rick Smith

Okay, be honest — you're just not patient enough to wait 55 years to catch the next passing of Halley's Comet through our neck of the solar system.

So why wait? According to Marshall astronomers Mitzi Adams and Bill Cooke, if you go outside and check the skies around 3 a.m. Friday, May 5, and Saturday, May 6, you

might be treated to an early-bird special.

Every year, around May 4-6, the Eta Aquarid meteoroid stream intersects with Earth, lighting up the lower Northern Hemisphere and much of the Southern Hemisphere with a hectic fireworks show.

As meteoroid streams rocket past Earth, many are caught by our gravity field and become "shooting stars," those captivating streaks of light that spawn wishes, thrill lovers — and signal the meteoroid's disintegration in the intense heat-friction of atmospheric entry.

Like most meteoroid streams, the Eta Aquarids are named for the constellation

containing the shower's radiant, or the point in the sky from which they appear to emanate. But what makes the Eta Aquarids really special is their origin — they're crumbled bits of Halley's Comet, tumbling violently around the sun and slowly eroding over eons, thanks to hungry gravity fields and other disruptive forces in space.

So those flashes and streaks this weekend are special, says Adams, who conducts NASA solar physics research at the National Space Science and Technology Center in Huntsville. They mark the slow demise of a celestial

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Marshall holds annual Take Your Children to Work Day on April 27

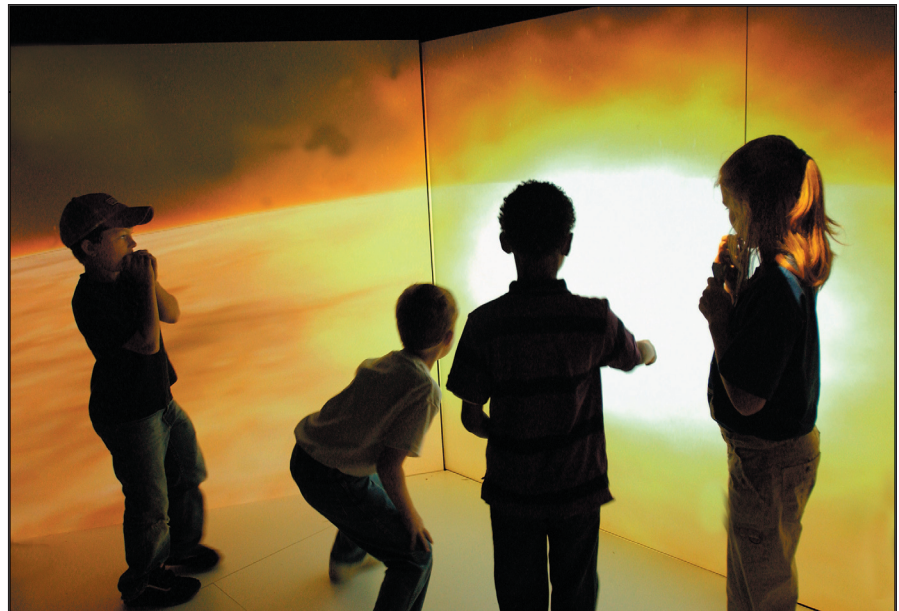


Marshall Center team members may have had a shadow or two following them around at work — their children. Marshall held its annual Take Your Children to Work Day on April 27, with the theme “Shaping the Future.” Activities included bus tours of the center, workshops about the International Space Station and the space shuttle, tours of NASA’s Vision for Space Exploration Experience interactive exhibit and a special screening of the Walt Disney film “Chicken Little.” At left, Marshall employees and their children attend the “Safety on Earth . . . Safety in Space” presentation in Building 4200. Over 900 children attended the activities.

Doug Staffer/MSFC

Marshall employees and their children get a glimpse of what it is like to go to the moon, Mars and beyond in the Vision for Space Exploration Experience interactive exhibit.

The holographic and 3D imagery exhibit finished its Alabama tour — including stops at Mobile, Tuskegee, Montgomery and Birmingham — at Marshall on April 26-27. The Thursday tours coincided with Take Your Children to Work Day. At right, children get close to images that appear on the five-screen presentation.



Meteor Shower

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traveler that passes within sight of Earth just once every 76 years.

Cooke, who studies such celestial travelers for the Meteoroid Environment Office at Marshall, says patient observers may see approximately 40 Eta Aquarids burn up per hour, especially at their peak on May 6.

They’re also fast-movers, says Cooke, hurtling through space at

roughly 40 miles per second — so they’re likely to be particularly bright against clear night skies.

American astronomer Alexander Stewart Herschel is generally credited with discovery of the Eta Aquarids in 1876, and subsequently with linking them to Halley’s Comet, which last bypassed Earth in 1986.

The writer, an ASRI employee, supports the Office of Strategic Analysis and Communications.

Apollo astronaut, Marshall and original von Braun team members to speak at Von Braun Forum on May 11

By Rita Roberts

The past, present and future of space transportation will take center stage at the annual Von Braun Forum in Huntsville on May 11. The forum panel will feature pioneers from NASA's earliest days, Apollo astronaut Charles Duke and representatives from the Marshall Center who are engineering the future of space today.

The panelists will highlight the development of the space program, from the first fleet of rockets that launched humans into space to the Vision for Space Exploration, including completion of the International Space Station and human and robotic exploration of the moon, Mars and destinations beyond. They also will discuss today's cornerstone experiences as the journey continues with new missions and the design and development of NASA's new crew and cargo launch vehicles managed at the Marshall Center for the agency's Constellation Program.

Sponsored by Marshall, the forum celebrates accomplishments of the space program and the contributions of Dr. Wernher von Braun,

Marshall's first director and chief architect of the Saturn V launch vehicle.

Charles Chitwood, Marshall Center deputy director, will kick off this year's event. Panelists include astronaut Charles Duke, lunar module pilot of Apollo 16 — the fifth manned lunar landing mission — and members from the original von Braun team: Konrad Dannenberg, Hans Fichtner, Dr. Walter Hausserman, Joachim Kuettner and Dr. Ernst Stuhlinger.

Other panelists are Marshall Center team members Mike Rudolph, director of the Engineering Directorate; John Horack, assistant manager of the Science and Mission Systems Office; Robert Lightfoot, manager of the Shuttle Propulsion Office; and Phil Sumrall, manager of advanced planning for the Constellation Systems Launch Vehicles Project Office. Ed Buckbee, co-author of "The REAL Space Cowboys," former NASA public affairs officer and the first executive director of the U.S. Space & Rocket Center, will moderate the forum.

A special video, "The Von Braun Visionaries," produced by the Marshall Center, will premiere at the forum. It includes interviews with the five members of the original von Braun team who will speak at the forum.

The forum will be held May 11 from 2-4 p.m. CDT at the Education Training Facility at the U.S. Space & Rocket Center. It is free and open to the public. Tickets are not required, but seating is limited.

The writer, an ASRI employee, supports the Office of Strategic Analysis and Communications.

Marshall team helps devise high-flying education initiative

Teachers honor Einstein's work aboard NASA's 'Weightless Wonder'

Next week, a group of American high school physics teachers will test experiments developed by their students, and they'll do so in a truly one-of-a-kind laboratory — on board NASA's C-9 aircraft, the "Weightless Wonder."

The project, conceived by Marshall Center scientists and education specialists, commemorates the 100th anniversary of Albert Einstein's most celebrated discoveries.

NASA, the World Year of Physics, the American Association of Physics Teachers and the American Physical Society selected six proposals from high school students and teachers nationwide for experiments to be flown on the aircraft. The aircraft will give flyers the feel of space as it conducts a series of flying maneuvers over the Gulf of Mexico, creating multiple periods of reduced

gravity.

Marshall Center astronomer Mitzi Adams, NASA materials scientist Dr. Frank Szofran and Marshall education specialists Betty Grisham and Twila Schneider co-created the flight project with former NASA astronaut Roger Crouch.

The teams are scheduled to fly experiments the week of May 8. Selected teams include Beaumont High School in Cleveland Heights, Ohio; Circle High School in Towanda, Kan.; Columbus High School in Columbus, Ga.; Glenbrook North High School in Northbrook, Ill.; Greendale High School in Greendale, Wis.; and Roosevelt High School in Seattle.

"Through their experiments and teachers, students can discover and understand another world — the world of physics," said Donn Sickorez, university affairs

officer of Johnson Space Center's Reduced Gravity Program, which manages the C-9 flights. "After all, it's physics that enables the plane to create such a unique learning environment."

As part of the experience, students get the chance to successfully propose, design, fly and evaluate a reduced-gravity experiment through NASA's Reduced Gravity Student Flight Opportunities Program. The overall experience includes scientific research, hands-on experimental design, test operations and educational and public outreach activities.

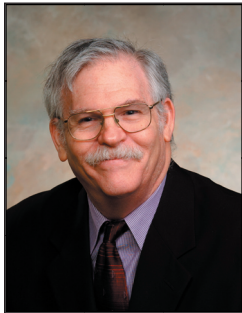
For information about NASA's education programs on the Web, visit <http://www.nasa.gov/education>.

For information on the World Year of Physics and the selected experiments, visit <http://www.physics2005.org>.

Dr. Martin Weisskopf honored with George W. Goddard Award

By Sherrie Super

Dr. Martin Weisskopf of the Marshall Center has received the George W. Goddard Award for scientific contributions to NASA's Chandra X-ray Observatory. Weisskopf is the project scientist for Chandra, the world's most powerful X-ray telescope.



Dr. Martin Weisskopf

Presented annually since 1961 by the International Society for Optical Engineering, the award recognizes the invention and development

of new techniques, instruments or systems that substantially advance aerospace, atmospheric science or astronomy applications. The honor is named for the late U.S. Air Force Gen. George W. Goddard, a pioneer of aerial reconnaissance and photography.

Weisskopf has dedicated nearly three decades of his career to the Chandra X-ray Observatory Program. He joined the observatory project in 1977. Twenty-two years later, he saw decades of work pay off when Chandra launched and delivered its first groundbreaking images to the world.

Today, Weisskopf continues to have a key role in Chandra scientific operations. As project scientist, he is responsible for the scientific integrity of the Chandra Program.

One of NASA's four "Great Observatories," Chandra has helped scientists better understand the structure and evolution of the universe — generating the most sensitive or "deepest" X-ray exposure ever made, shedding new light on planets within our solar system and making

a multitude of discoveries involving supermassive black holes.

Weisskopf has a bachelor's degree in physics from Oberlin College in Oberlin, Ohio, and a doctorate in physics from Brandeis University in Waltham, Mass. He began his post graduate career at Columbia University in New York, in 1969, where he became an assistant professor and performed many pioneering experiments in X-ray astronomy. In 1977, Weisskopf joined the Marshall Center as senior X-ray astronomer and project scientist for Chandra.

During his career, he has held numerous special appointments and earned a wide array of accolades. Awards include NASA medals for Exceptional Service and for Scientific Achievement, a 2003 Presidential Rank Award for Meritorious Senior Executives, and the 2004 Rossi Prize for research in astrophysics. In 1994, he was elected a Fellow of the American Physical Society, and in 2001 as a fellow in the International Society for Optical Engineering. Weisskopf is author or co-author of 236 publications including peer-reviewed journal articles, articles in books, monographs and papers in conference proceedings.

Based in Bellingham, Wash., the International Society for Optical Engineering is a technical association for engineering and scientific applications of technologies related to optics, imaging and photonics — the electronic technology behind optical devices such as lasers or video cameras. The largest professional optics engineering society of its kind, the organization has more than 17,000 individual members in more than 80 countries.

The writer, an ASRI employee, supports the Office of Strategic Analysis and Communications.

Flashback to 1999: Weisskopf saw 22 years pay off when Chandra launched

By Sherrie Super

When joining the Chandra X-ray Observatory project in 1977, Dr. Martin Weisskopf took out a piece of paper and wrote his estimate of when the telescope would launch: the year 2000.

"I did not expect it to go fast," he said in the weeks following Chandra's launch. "We actually exceeded my expectations." Chandra, originally known as the Advanced X-Ray Astrophysics Facility, was launched on board Space Shuttle Columbia in July 1999.

After committing his prediction to paper, Weisskopf saw his children grow up, watched them have children, and held on to that piece of paper.

The son of two lawyers from Vienna, Weisskopf grew up on the South Side of Chicago and went to college to follow in his parents' professional footsteps.

Soon, however, he discovered his love of physics over law.

That preference was fueled by a discovery he made while researching a term paper on quantum mechanics. A favorite uncle, he learned, was a famous scientist — Victor Frederik Weisskopf, former Massachusetts Institute of Technology professor and director-general of the prestigious CERN European Laboratory for Particle Physics in Geneva, Switzerland.

Weisskopf found he was "really interested in astrophysics and pursuing new frontiers." When Chandra's first images were unveiled in 1999 — 30 years after he received his doctorate in physics — Weisskopf realized the dream he had clung to for two decades.

In more than six years since, Chandra has continued to deliver on its early promise. Using the observatory, scientists worldwide have gleaned new information on dark energy, black holes, exploding stars and all other categories of astronomical objects.

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NASA disassembles and reassembles Tropical Storm Gert

Scientists try to figure out what makes a hurricane tick

NASA Headquarters news release

To figure out how something mechanical works, people take it apart and look at its components, then try and put it back together. That's what NASA researchers are doing with hurricanes, to try to figure out what makes them tick. For Tropical Storm Gert, which formed in the Gulf of Mexico in July 2005, they found that the mountainous areas of Mexico helped the storm to form.

To see how a hurricane works, scientists take readings of all its pieces: wind, rain, temperature, humidity and air pressure. They can also use computer models to try to re-create the storm's conditions. By comparing model simulations to actual observations of the storm, they can determine how good or bad the models are. If the models do poorly, scientists try to figure out what went wrong. If they do well, scientists can then use the model results to try to better understand how hurricanes form and intensify. Researchers did this after the summer of

2005, using Gert as a test case to make sure that their computer models were accurately "re-assembling" the storm as it appeared.

Scott Braun, atmospheric scientist at NASA's Goddard Space Flight Center, Greenbelt, Md., and his co-author on the Gert study, Michael T. Montgomery, an atmospheric scientist from Colorado State University, took data produced by the National Centers for Environmental Prediction about the state of the atmosphere during Gert, and used it in their computer model. The model produced a re-creation of Tropical Storm Gert. Their conclusions were presented at the American Meteorological Society's 27th Conference on Hurricanes and

Tropical Meteorology the week of April 24 in Monterey, Calif.

If one used only actual observations to figure out what makes a storm tick, it would be much more difficult because these observations are very limited in space and time. If scientists can trust that a computer model did a good job, they can use the model's information to figure out what is happening everywhere in the storm at all times. This will help scientists learn much more than they could from the observations alone.



NASA's ER-2 airplane departs the San Juan Santa Maria airport during the Tropical Cloud Systems and Processes Experiment mission.

The Gert data was gathered by a large mission called the Tropical Cloud Systems and Processes Experiment, or TCSP, which included airplanes that dropped sensors called "dropsondes" into the storminess of Gert to get wind, temperature and humidity data. Other data used to check the accuracy of the computer model included flight-level winds from the NOAA P-3 aircraft, NASA ER-2 Doppler radar data, and precipitation information from a direct overpass of the Tropical Rainfall Measuring Mission satellite.

Gert began as a low pressure area that formed in the Gulf of Honduras just east of Chetumal, Mexico, on July 22. The low

quickly moved inland over Yucatan, then into the Bay of Campeche early on July 23. A tropical depression formed about 255 nautical miles east-southeast of Tuxpan, Mexico. The depression strengthened into Tropical Storm Gert on July 24.

"We examined the role that topography in Mexico played in the development of Tropical Storm Gert," said Braun. They found that the mountains blocked the flow of air at low levels, which according to the computer model was critical in helping Gert form. As the weak disturbance that eventually became Gert

moved into the Gulf of Mexico, the easterly winds associated with it ran up against the mountains of Mexico along the western side of the Gulf. When air flow like this encounters such an obstacle, it has two options.

Under the right conditions, air flow could simply go up and over the mountains. However, under other conditions (when the air is stable), the air encounters more resistance to upward movement and must go around the mountains. That is what happened in Gert's case. As the easterly winds hit the mountains, they were forced to turn to the southeast in a direction parallel to the mountains. By turning the flow partially back in the direction

from which it came, the mountains increased the large-scale rotation of the winds over the Gulf, thereby providing a more favorable environment for Gert to form and intensify.

This may not necessarily apply to all storms in the Gulf. Gert was probably a borderline storm that needed help to form. While some systems like Gert may occasionally need help to develop, many other storms do not require such help, but can develop easily on their own. Scientists don't know how often storms might need this type of help. Even if it is not often, knowing how those kinds of storms develop is still important to those people who are impacted by them.

NSSTC to host guest science lecturer David McComas on May 11

The National Space Science and Technology Center will host a lecture by researcher Dr. David J. McComas, senior executive director of the Space Science and Engineering Division of Southwest Research Institute in San Antonio.

McComas will discuss the proposed Interstellar Boundary Explorer mission, or IBEX, on May 11 at 11 a.m., in NSSTC Conference Room 4078.

The lecture — the first in the NSSTC's new monthly Distinguished Lecturer Series — is open to scientists and employees at the NSSTC, the Marshall Center, The University of Alabama in Huntsville, Alabama A&M University and affiliated universities and firms.

The mission, co-created by researchers at Southwest Research Institute, NASA's Goddard Space Flight Center in Greenbelt, Md., and other partner institutions, could take flight in coming years to study the relationship between the powerful solar winds and the interstellar medium — the gas and dust drifting in open space beyond our solar system.

The Interstellar Boundary Explorer mission could provide insight into "termination shock," the boundary marking the outer limits of the sun's influence, where solar wind particles are believed to slow down and heat up as they slam into particles of the interstellar medium. The termination shock point is believed to be about 100 astronomical

units from the sun. One astronomical unit is roughly 93 million miles, the equivalent of the distance between Earth and the sun.

McComas, who chiefly pursues research in solar wind, heliospheric, magnetospheric and planetary science, is principal investigator of the Solar Wind Observations Over the Poles of the Sun experiment, or "SWOOPS," launched to space on the Ulysses spacecraft in 1990 to gather data about the solar wind. The experiment and spacecraft have returned a wealth of data that has broadened our understanding of the structure of the sun and its environment, McComas said.

For more information about McComas' lecture, call the NSSTC at 961-7000.

Test

Continued from page 1

collect and evaluate the motor's performance.

Preliminary data indicates that all test objectives were met. After NASA technicians analyze all final test data, results for each objective will be published in a final report that will be available later this year.

Regular static-fire tests of space shuttle reusable solid rocket motors enable NASA to maintain the highest safety, quality and reliability standards of solid rocket motors used for human spaceflight. Testing ensures safety and enhances confidence in the performance of motors in NASA's Space Shuttle Program.

"Full-scale static testing continues to be a key element of our 'test before you fly' standard that we apply to our processes, material, hardware and design changes," said Jody Singer, manager of the Reusable Solid Rocket Motor Project, part of the Space Shuttle Propulsion Office at the Marshall Center. "Testing such as this is important to ensure continued quality and performance."

The shuttle's reusable solid rocket motor is the largest solid rocket motor ever flown, the only one rated for human flight and the first designed for reuse. Each shuttle launch requires the boost of two reusable solid rocket motors to lift the 4.5-million-pound shuttle vehicle. During space shuttle flights, solid rocket motors provide 80



Preliminary data indicates all test objectives were met in a space shuttle solid rocket motor test April 28.

percent of the thrust during the first two minutes of flight. Each motor generates an average thrust of 2.6 million pounds and is just over 126 feet long and 12 feet in diameter. They are the primary component of the shuttle's twin solid rocket boosters.

During a shuttle launch, the solid propellant rockets take the shuttle to an altitude of 28 miles at a speed

of 3,094 mph before they separate and fall into the ocean to be retrieved, then refurbished and prepared for another flight.

ATK Launch Systems manufactures the shuttle's solid rocket motor at its Promontory plant north of Salt Lake City.

The writer, an ASRI employee, supports the Office of Strategic Analysis and Communications.

Classified Ads

To submit a classified ad to the Marshall Star, go to Inside Marshall, to "Employee Resources," and click on "Employee Ads — Submit Ad." Ads are limited to 15 words, including contact numbers. No sales pitches. Deadline for the next issue is 4:30 p.m. Thursday.

Miscellaneous

Cosco high chair, new, \$20; Evenflo stroller, infant carrier/car seat, \$30; bouncy seat, \$5. 256-773-5051

Toyo Proxes tires: two 205/45/ZR16; two 245/40/ZR17, fits Acura NSX, used 300 miles, \$600. 566-1917

New unstrung head Liquidmetal Radical tennis racquet, gripsize 4-3/8, headsize 107 square inches, \$95. 883-1468

Daniel Moore Alabama Football print, "The Winning Connection," signed, numbered (1354/7000), professionally framed. 423-4217

Yamaha YTR-632 trumpet, silver, gold, red brass bell, refurbished, books, case, \$500. 479-4345

Garmin GPS V with City Select SW v7, \$250. 656-7997

Craftsman workbench w/lighted, powered back wall, new in box, \$300; computer desk with drawers/shelves, \$125. 776-9165

iPod Remote Interactive Dock DS-A1, for use with Onkyo sound system, new, \$75. 256-828-1234

Water bed, twin size, soft side mattress, \$50. 971-1414

Olympic weights, 325 lbs., 72" bar, curl bar, multi-featured bench, \$250. 882-0271

Baby jogger, 16" wheels, green, \$170; child bike trailer, used twice, foldable, \$65. 880-6152

Two aluminum pool lounges w/white vinyl strapping, \$45 for both; trampoline, 14' diameter, \$100. 830-2806

MTD Pro push mower w/Honda 5.5HP engine, used two seasons, \$100. 256-864-0237

Hunter baseball fan with reversible blades, \$60. 722-9535

Antique shield back chairs, dining room, three side/one arm, green/red/gold striped seat pattern, \$800. 426-5937

Used 55-gallon plastic drums, \$10 each. 256-679-8041

Micron 17" computer monitor, \$5. 721-0617

Custom built smoker, 250-gallon tank on 14' trailer, two wooden storage boxes, \$3,500. 520-2327

Chain-link dog pen, 71x12'x6', used, all parts included, \$100. 489-6320

Blackberry wireless/phone, charger, Sync software, 2 batteries, one extended life, Bluetooth capable, \$35. 652-5177

Nikon Coolpix 4300 digital camera w/manuals, additional memory and Lowepro carrying case, \$200. 961-7971

Oriental silk folding screen, 4x6, crane motive, \$80. 509-2936

Formal dining table w/server, \$300; oak entertainment cabinet for 36" TV, \$500; chandelier. 881-2131

Oak entertainment center w/recessed lights, holds up to 36" TV, \$700. 829-0285

Tailor-made 320 irons, RH, 3-PW, steel shaft, \$200. 880-7305

Hedstrom 8-leg swing set; Step Two slide, Big Splash center and Little Tikes boat. 881-2138

Earthquake one-person post hole digger w/ 6" bit, \$185. 776-2263

Two couches, brown and plaid; love seat, plaid; \$40 each. 508-8269

Oak china hutch, \$500; 8' table, 8-chairs, \$300; sofa, \$100; 2 end tables, desk, \$75. 651-0900

Color Laser printer, Konica-Minolta Magicolor 2300W, new, never used, in factory sealed box, \$250. 337-0075

Tin wind-up astronaut/robot w/camera circling Mars space station, in box w/key, \$20. 393-3702/Decatur

Maytag gas dryer, \$90; surplus/salvaged building supplies, best offer. 509-7907

Antique Tiger Oak chest w/mirror, \$350; Oak computer desk w/hutch, \$125; sofa table, \$75. 256-830-1911

Vehicles

2002 Nissan Pathfinder, Bose CD changer, power, remote, roof rack, step bars, 60K miles, \$15,900. 880-9025

2003 Ford F-150 Lariat truck, Super Crew, 4.6L, 8-cyl., sunroof, leather, loaded, 48K miles, \$19,900. 256-318-5372

Silverline boat, 17', 1978 model, 115 Mercury, live wells, trolling motor, depth finder, extras, \$1,550. 426-0223

1998 Chevrolet Cavalier, 4 cylinder, automatic, a/c, power windows, cruise control, compact disc/radio, \$1,950. 603-3558

2003 Honda Accord EX coupe, 4 cyl., 58K miles, extended 100K warranty, leather, all power, \$17,500. 256-721-1234

1991 Nissan Stanza, 5 speed, 155K miles, new engine at 80K miles, a/c, PW/PL, 4 door, \$1,490. 426-2516

1994 Bullet bass boat, 2000 200 EFI Mercury, tournament

rigged, \$14,900. 233-3407

2003 Jeep Liberty Renegade Edition, 26.6k miles, all options, \$19,000. 256-426-8887

1995 Nissan XE standard pickup, green, 168K miles, 5-speed manual, air, AM/FM cassette, bedliner, \$2,900. 859-3029

1999 Chevrolet Suburban LT, 4x4, leather, video, rear air, 3rd seat, CD, towing, \$8,500. 256-858-5552

1985 BMW K100RS motorcycle, 62K miles, 45MPG, bags/cruise, heated grips, alarm system, new tires, \$3,000. 653-0145

2001 Toyota Tacoma Xtracab, PreRunner, red, 74K miles, warranty, V6/AT, tow package, toolbox, \$15,500. 683-9016

2001 BMW Z3, 3.0, convertible, 54K miles, black, 2 door, \$19,900. 503-5035

2004 Chrysler Sebring convertible, touring, gold, leather, cruise, CD, warranty, \$15,500. 652-5177

2005 Titan LE Crew Cab, 4x4, smoke, gray leather, 142K miles, \$27,500. 603-4460

2006 GMC Yukon SLT, 18K miles, loaded, need pay off. 468-3790

2003 Ford Focus SE, black, automatic transmission, power windows/door locks, CD/AC, 95K miles, \$6,250. 256-714-0581

Gamefisher fishing/hunting boat, 12', fiberglass, 9HP, Evinrude motor, trailer, \$900. 256-694-1217

2000 Honda Accord, 2 door, 57K miles, CD, cruise, spoiler. 655-6293

2003 Kia Sorento Luxury Edition, leather, sunroof, CD/cassette, many options, 100K miles, \$11,500. 256-233-6157

Villian II ski boat, new motor, \$3,000. 679-0073

1998 Chevrolet Cavalier, 4 door, 4 cylinder, 2.4L, power windows, a/c, automatic, compact disc/radio, \$1,950. 603-3558

Wanted

2004 Toyota Sienna. 539-5495

Usable Dish network TV receiver. 883-4570

Pine needles for flower beds, will rake. 722-9535

Metal "W" roofing, 24', manufactured by Halmet or equal, to replace damaged section of awning. 883-2757

Go Kart for 10 yr. old, in good condition. 533-0074

Free

Swing set, you disassemble and move. 971-1414

'Countdown to lift-off...'



Doug Starffer/MSFC

A rocket designed and built by students at Lee High School in Huntsville lifts off the launch pad carrying a scientific payload of live crickets at last year's NASA Student Launch Initiative, sponsored by the Marshall Center. The rocket was just over 5 feet tall and nearly reached a mile in altitude during its flight. This year, 11 high school rocketry teams from around the country will participate in the 2006 Student Launch Initiative May 4-6. On Thursday, May 4, the student teams will exhibit their rockets for

the Marshall team in Morris Auditorium and the lobby of Building 4200. The launch will be Saturday, May 6, in Manchester, Tenn., and is free to the public. The NASA Student Launch Initiative allows high school and college student teams to put their aerospace and engineering knowledge to use in a real-world situation by designing and building their own rockets with a science payload. The program encourages students to consider careers involving math and science.

MARSHALL STAR

Vol. 46/No. 32

Marshall Space Flight Center, Alabama 35812
(256) 544-0030
<http://www.nasa.gov/centers/marshall>

The Marshall Star is published every Thursday by the Public and Employee Communications Office at the George C. Marshall Space Flight Center, National Aeronautics and Space Administration. Classified ads must be submitted by 4:30 p.m. Thursday, and other submissions no later than 5 p.m. Friday to the Marshall Public and Employee Communications Office (CS20), Bldg. 4200, Room 103. Submissions should be written legibly and include the originator's name. Send e-mail submissions to: intercom@msfc.nasa.gov. The Star does not publish commercial advertising of any kind.

Manager of Public and Employee
Communications — Dom Amatore
Editor — Jessica Wallace

GPO: U.S. Government Printing Office 2006-523-050-20047

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